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PHONETICS



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A COMPARISON OF
ENGLISH AND PEKINGESE



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PHONETICS.

DEFINITIONS.

Phonetics is the science of speech sounds. We may study how the sounds are produced by the actions of the vocal organs, how they differ in the effect they produce on the ear, and how they should be recorded. In most of the study that has been devoted to the languages of the Far East attention has been concentrated on the second and third of these three divisions. In this article the chief stress will be laid on the first division in order to supplement and correct what has been done on the others.

USES OF PHONETICS.

The principal uses of phonetics may be briefly summarized. A knowledge of the science serves to correct one's own pronunciation. It also aids in the correct acquisition of a new language by enabling the student to differentiate between sounds somewhat similar to each other or to those used in the mother tongue. It further enables us to form and use entirely new sounds; and is of great value in teaching elocution, singing and shorthand. In teaching the deaf and dumb it is indispensable.

THE VOCAL ORGANS.

These include not merely the vocal cords and tongue, but the lips, teeth, hard and soft palate, nose, lungs, and diaphragm. It is well to read carefully the descriptions of the vocal organs in the text books on the subject and to examine the pictures showing the various parts. A mirror is indispensable in the study of phonetics. A hand mirror is sufficient for the study of one's own vocal apparatus, but a mirror large enough to reflect the faces of student and teacher is better when one is attempting to learn a new language.

THE CHARTS.

In the charts accompanying this article I have made use of the International Phonetic Script. The value of the symbols used is given in the following paragraphs. The letters to the right where they occur in pairs, are those which represent sounds in which the vocal cords are vibrated and are called voiced, sonant, or vocalized sounds, in contrast with the voiceless, surd, or non-vocalized sounds which are to the left. The perpendicular columns divide the sounds according to the place where they are formed, whether on the lips, on the tongue, etc. The horizontal columns divide them according to the kind of formation, whether a stop, a narrow or broad opening, and whether there is or is not an accompanying opening of the nasal passages.

PHONETICS.

VOICED AND VOICELESS.

It is most important that the student get clearly in mind the distinction between the voiced and voiceless sounds. Most of the sounds are found in pairs which are alike in the place and shape of their formation, but which differ in the fact that one is accompanied by the vibration of the vocal cords and the other lacks this. The latter is usually accompanied by a stronger expulsion of the breath; this is called aspiration. The difference between the voiced and the voiceless sounds is brought out clearly with *s* and *z*. Care must be taken to give the sounds only and not the names of these letters. Pronounce the words *sink* and *zink*, then drop the sounds *ink* from each word leaving only the initial sound. If the fingers are placed on the "adam's apple" it will be found that there is a strong vibration with the *z* sound and none with the *s* sound. This vibration can also be felt on the top of the head and on the ribs when the vocal cords are vibrated. The amount of aspiration or breath can be measured by holding a strip of paper in front of the mouth while giving the sound and seeing how much force is exerted on the paper by the breath. Or it can be gauged by simply holding the hand before the mouth.

ENGLISH CONSONANTS.

p and *b* are lip stop consonants. "Lip stop" means they are formed with the lips, which entirely stop the breath stream. *p* is aspirated and not voiced and *b* is voiced and not aspirated.

t and *d* are formed by stopping the flow of breath with the tip of tongue on the gums. *t* is aspirated and not voiced and *d* is voiced and not aspirated.

k and *g* are formed with the back of the tongue against the back of the palate where it is soft. *k* is aspirated and not voiced and *g* is voiced and not aspirated.

m is formed in the same place as *p* and *b*, but is accompanied by nasalization. Nasalization is produced by slightly lowering the velum or soft palate so as to allow the flow of breath through the nose. This can be proven by sounding the *m* for a few seconds and then grasping the nose, when the sound will cease. *m* is a voiced sound and may be defined as a nasalized *b*.

n is formed in the same position as the *t* and *d* and like the *m* is nasalized.

ŋ is the sound usually written *ng*. It is formed in the same place as *k* and *g*, and like *m* and *n* is nasalized. By the use of the mirror one can see that in *n* and ŋ the tongue occupies very different positions. In *n* the tip of the tongue is up, while in ŋ it is down and the back is raised. ŋ is just as simple a sound as *n*

and is therefore represented by one and not two letters. In *ɳ* there is no *n* and no *g*. In English this sound does not occur as an initial but is found only at the end of syllables. In some of the Chinese dialects it occurs frequently at the beginning of a word, and foreign students who have used it all their lives as a final, find it difficult to use it as an initial, because they try to pronounce an *n* and then a *g*.

ɱ is the sound that is written *wh* as in *which*. It is the voiceless sound formed in the same way as *w*. These two sounds are formed by making a very small opening with the lips, which are slightly pursed, and this 'rounding' is accompanied by the raising of the back of the tongue to the *u* position. Some speakers, including many who live in southern England, make no distinction between these two sounds, and pronounce *white* and *wite* in exactly the same way. *Whale* and *wail* are given by many as identical.

f and *v* are formed by placing the lower lip on the upper front teeth but leaving a small opening extending across the mouth. *v* is voiced and *f* is not. Try saying *fan* and *van*.

θ and *ð* are the two sounds of the English *th*. The former is voiceless and the latter is voiced. In '*thistle*' one finds the voiceless sound and in '*this*' the voiced. These sounds are formed by making a long thin opening between the front of the tongue and the upper front teeth. They are simple and not double sounds. They contain no *t* and no *h*, and therefore it is confusing to represent them by these symbols.

s and *z* are formed by making a small opening between the tip of the tongue and the front palate or gums. The first is voiceless and the second is voiced.

ʃ and *ʒ* are called the '*hushing*' sounds in contrast with *s* and *z* which are called the '*hissing*' sounds. They are the *sh* sounds; the first is voiceless and the second is voiced. The first is very common, the second occurs less often in English but is found in the initial sound in '*jardiniere*'. It is the sound represented by *si* in the word '*vision*'. In such words as *jam* or *jar* the *j* represents two sounds, the first being *d* and the second the sound *ʒ*.

j is the sound which is usually written *y*. In the International Script *j* is used because that is the symbol used in some of the continental languages to represent this sound. It is formed by the front part of the tongue and the hard palate in a position a little back of *ʃ* and *ʒ*. The sound is voiced and the voiceless form of this which is common in some other languages is seldom found in English, though it does occur as the first sound in the word '*hue*'.

r is formed by turning the tip of the tongue up and making a narrowing between it and the back edges of the gums. The sound

PHONETICS.

is voiced. This is the position for an initial *r*, but *r* as a final is made by turning the tip of the tongue farther back. In southern England and in the southern states of America the final *r* is not sounded. The text books recommended below should be studied very carefully in connection with this sound. In observing how this sound is formed the use of the mirror is to be recommended. It can also be studied by pronouncing the sound and then without moving the organs inhaling through the mouth. The places which feel the cooling effect of the inhaled breath will show what parts of the tongue and palate are not in contact. This latter test is also to be recommended in connection with *l*.

l is formed by closing the air passage in the middle of the mouth by placing the tip of the tongue against the gums and the edges of the tongue against the side teeth in front and allowing the vocalized breath to escape at the side of the tongue in the back. Some speakers allow the breath to escape on both sides and some form an opening on only one side. The acoustical effect is the same in both cases. The final *l* in English resembles many of the English vowels in being a '*glide*'. During its utterance the back of the tongue is raised or glided and not left in one position. It is very difficult for foreign students of English to learn to make this glide.

ENGLISH VOWELS.

The triangular position in which the vowels are arranged on the chart is to indicate the highest position of the tongue in forming each vowel, the points of the triangle are *i*, *a* and *u*. With *i* the tongue is up in front, with *a* the highest point is in the middle, but the whole tongue is low, and with *u* the back of the tongue is up. These letters are used with their Italian values. All the vowels are voiced. Their voiceless form occurs in *h*, and *h* consists merely of shaping the vocal organs for the vowel which is to follow, and breathing without vibrating the vocal cords. There are as many forms of *h* as there are vowels. This can be observed by saying *ha*, *he*, *hi*, *hu*, *ho*, etc. The sounds of the vowels are modified however not only by the tongue position, but also by the shape of the lips, and it can be varied also by opening or closing the passage from the back of the mouth into the nose. This passage should never be opened in giving any of the English vowels but this is done by some Americans who are then said to "talk through the nose." The nasalized vowels are used in French and by many Chinese when a vowel is preceded or followed by a nasal consonant.

i is a front vowel made between the front of the tongue and the hard palate, and the lips are broad. It is the sound heard in '*eat*'.

PHONETICS.

I is made with the tongue slightly more removed from the palate, and if the finger is placed under the chin *an inch from the tip* it will be found that the muscles are much less tense than in *i*. This sound is heard in the word *it*. It is called the short sound of *i*, but differs in quality as well as in quantity.

e is formed with the tongue still more removed from the palate, and the lips are less broad. Most English speakers do not give this sound in its pure or simple form, but glide from *e* to *i*. It is the vowel sound of '*bate*,' or '*ate*'.

E is the looser or more open sound resembling *e*. It is heard in '*net*'.

æ is still more open and loose than *e* and is heard in "*bat*."

a is the most open sound we have in English, both as to the tongue and the lip position. It is the first vowel in '*bottle*'.

o is made with the tongue further back in the mouth than with *a*, and the lips form a large round opening. It is the vowel in '*bought*'.

o is formed by raising the back of the tongue and rounding the lips in a smaller opening than in *o*. This sound is seldom given in its simple or pure form, but glides into the *u* sound.

U is the sound heard in the American pronunciation of '*book*' or '*put*'. It is not common in England. The back of the tongue is higher than in *o* but not so high as in *u*, but the lip rounding is relaxed.

u is formed by placing the back of the tongue very near the soft palate and rounding the lips.

ə is the most common vowel sound in English. It is formed by raising the middle of the tongue slightly above the *a* position and is given with the vocal organs in a very relaxed state. A large percentage of the accented vowels are pronounced in this way, no matter what the spelling may be. It is the second vowel in *finger*, *rigor*, *stirrup*.

THE NORMAL POSE OR ORGANIC BASIS IN ENGLISH.

In addition to knowing the exact formation of each sound,—and the above description is of course all too brief, and should be supplemented by a careful study of the books on English phonetics,—it is also important that one should know the generalizations regarding the formation of English sounds, and the use of the vocal organs. I state them in terms which show their contrast with the similar generalizations in Pekingese which broadly speaking, may be allowed to represent "Mandarin".

1. In English the lower jaw is frequently thrust forward as well as opened downward.

PHONETICS.

2. The tongue is held further back than in Chinese. The one exception to this is in the θ and f sounds.

3. Aspirated consonants are less strongly aspirated and voiced consonants are more strongly voiced in English than in Chinese.

4. The vocal organs are less tense in English than in Chinese. When a speaker of English hesitates for a word, he frequently gives the sound ə . This is called the colorless, or natural, vowel in English.

1. ENGLISH SOUNDS

| | <i>Lip</i> | <i>Point and Blade</i> | <i>Front of Palate</i> | <i>Back of Palate</i> | <i>Glottis</i> |
|--------|------------|---------------------------|------------------------|-----------------------|----------------|
| Stop | b p | t d | | k' g | |
| Nasal | m | n | | ŋ | |
| Narrow | w f v | θf sz $f\text{子}$ | j | | h |
| Liquid | | l r | | | |
| Open | | | | | |

2. PEKINGESE SOUNDS

| | <i>Lip</i> | <i>Point and Blade</i> | <i>Front of Palate</i> | <i>Back of Palate</i> | <i>Glottis</i> |
|--------|-------------|--------------------------|------------------------|-----------------------|----------------|
| Stop | 排 白 p' p | 挖 多 t' t | | 枯 姑 k' k | |
| Nasal | 媽 m | 那 安 n | | 骯 ŋ | |
| Narrow | 窩 伐 w f | 撒司 喫知是 sz $f\text{子}$ | | 河 X | |
| Liquid | | 拉 l 日兒 r | | | |
| Open | | | | | |

PEKINGESE CONSONANTS.

Having given a resumé of the phonetic value of English sounds, we now give the value of sounds found in Pekingese. It will be noticed that what applies to Pekingese applies to Mandarin sounds generally. Pekingese is chosen because it is the language of the metropolis, and the dialect in which a large number of books is written.

排 白 p' and p are made with closed lips and on opening them there is considerably more breath in p' than the English p . The Chinese p is followed by no explosion of breath, it may be regarded as a breathness p or a voiceless b . It is accompanied by no vibration of the vocal cords and during this formation the glottis is closed. The unaspirated Chinese p , t , k , are like the French p , t , k , which are also unaspirated.

挖 多 t' and t are not formed in the same place as the English t and d . The tip of the tongue is more forward being placed on the teeth sometimes as far down as in the case of the English th . As with the Peking p' and p the t' is strongly aspirated and the t is unaspirated and unvoiced.

枯 姑 k' and k are formed by raising the back of the tongue until it touches the soft palate at a place slightly nearer the front than that of the English k or g . k' is accompanied by a strong flow of breath and k has no flow of breath and no vibration of the vocal chords.

媽 m is formed like the English m by closing the lips. It is voiced and the sound comes out through the nose. The vibration of the vocal chords during this sound does not last as long as in English.

那 安 n is formed like the t' and t on the teeth, otherwise it is like the English n except that the vibration does not last as long as in English.

駝 $ŋ$ is formed in the same place as k' and k and differs from the English $ŋ$ in being voiced during less time.

窩 w the position of the lips in this sound is almost the same in Pekingese as in English. In many of the Chinese dialects the w is entirely lacking, a u being given instead. The rounded opening between the lips is larger in the case of u than in that of w .

伐 f is formed like the English f but it is more strongly aspirated.

撒 司 咨 s and z are formed a little further forward in Chinese than in English. s is more strongly aspirated than in English. z does not occur except in combination with t , and following s in such words as the Pekingese for 'four'. T s without

the aspirate consists really of *t* and *z*, but the *z* has very slight voicing. It is also used in *ts'u* 粗 and *tzu* 誼. In the former case the word contains three sounds:—*t*, *s*, and *z*. There is no vowel. In changing from *s* to *z* the tongue is not moved. The only difference is that the vocal cords are vibrated in *z*. In *tzu* there are two sounds:—*t* and *z*. The *z* is prolonged. These syllables are cases of words in which no vowel is found. There are three other examples of this in Pekingese which are noted below. In the Shanghai and related dialects, *m* and *ɲ* are also used as complete words without any vowel. In English contrary to the so-called law that every syllable must contain a vowel there are syllables consisting of the sounds *m*, *n* or *l* in which no vowel sound is given.

是 喫 知 *f* and ㄗ. ㄗ occurs only in combination and not as a simple consonant. In Wade the combination is written *ch'* or *ch* as in English, *ch* is a double sound consisting of *t* and *f* both being strongly aspirated. *Ch'ih* consists of *t'*, *f*, and ㄗ. There is no vowel in the word. *Chih* consists of *t* and ㄗ the latter sound is voiced, but the tongue is not moved from the ㄗ position to any vowel position. In Wade's romanization the combination *hs* is used before *i* and *u*, but I cannot discover that it differs from the sound *sh*. It is really an *f* so far as the position of the tongue is concerned. In central and eastern Shantung a real difference exists between *sh* and *hs*. The latter is made in the middle of the mouth in the same place where *y* (phonetic script *j*) is formed. It is a voiceless *y* and is the same as the consonant in the German *ich*. The German sound is used as a final while in Shantung it is an initial. *f* and ㄗ are formed somewhat nearer the front than the corresponding sounds in English. *f* is more strongly aspirated than in English.

河 灰 *X* is the sound which is commonly represented by *h* but unlike the English *h* is formed not in the glottis but by bringing the back of the tongue nearer the soft palate and fluttering the uvula against the tongue making a sound similar to the consonant in the German *ach*. In German this sound is used as a final but in Chinese it is used only as an initial.

人 日 *r* is formed in about the same place as the initial *r* in English but accompanied by a *z* like *buzz* which is formed by pressing the rolled up tip of the tongue nearer to the hard palate than in English. In final *r* which occurs in *er* 而 兒 the tip of the tongue is turned very far back, even further than in the final American *r*. The word written *jih* in Wade is really an *r* sound prolonged. It contains no vowel.

拉 *l* is formed by pressing the tip of the tongue on the teeth rather than on the gums as in English and allowing the voiced stream of breath to flow out between both sides of the tongue and the back teeth.

PEKINGESE VOWELS.

The following vowels are found in Pekingese and differ very little from the corresponding vowels in English except that the highest point of the tongue in forming each of them is slightly nearer the front than in the corresponding vowels in English.

| | | |
|-----|----------|--|
| 迷 | <i>i</i> | as in beat. |
| 民 | <i>I</i> | „ „ bit. |
| 灰 | <i>e</i> | „ „ bate, but without the English glide. |
| 僧 眞 | <i>E</i> | „ „ bet. |
| 券 | <i>æ</i> | „ „ bat. |
| 拿 | <i>a</i> | „ „ bottle. |
| 玻 | <i>o</i> | „ „ boat, but without the glide in the end of the vowel. |
| 土 東 | <i>u</i> | „ „ boot. |

門 蒙 *ə* occurs before final *n* and *ng*. Before final *n* it is more forward in the mouth than the corresponding sound in English. Before a final *ŋ* it is further back than the corresponding sound in English.

The three following vowels which occur frequently in Pekingese are not found in English.

於 *y* which is in the Wade system of romanization written *ü* is formed by placing the front of the tongue in the position for saying *i* and the lips in the position for saying *u*.

河 *ɤ* is used to represent the sound of the vowel in the word for river commonly written *ho* or *he*. In forming this vowel the back of the tongue is raised half way, that is to the regular *o* position but the lips are broad.

由 *u* this sound is written in phonetic script to represent the vowel produced when the back of the tongue is raised to the *u* position but the lips are broad and not rounded. Some, but not all, Pekingese use this sound in giving words of the first and second tones which are romanized *iu*.

挖 騾 唆 Sounds which are romanized *o* as in *to*, *lo*, *so*, really should be written as diphthongs, as the *o* is pronounced as *oɔ* or sometimes *oa*, or *oɤ*.

In what most authorities recognize as pure Pekingese such words as *an*, *ai*, *ao*, are given without any consonant preceding the vowel. This occurs in the words for *peace* and *love* but one does not have to go very far from Peking to discover the use of a variety of consonants put on before the vowel in these words. In Tientsin an *n* is used, in other regions a *j*, in other regions there is a consonant given which corresponds very closely to the German guttural *r*. This is formed by raising the back of the tongue near the soft palate and forcing the voiced stream of breath through the narrowing in such a way as to produce a fluttering of the uvula. In other words this

is the voiced sound which corresponds to the non-voiced *x* described above.

The sound of *i* occurs without a consonant before it in many words in Pekingese but people from other places often give the *y* (phonetic script *j*) sound like the two first sounds in the English word *yield*.

THE NORMAL POSE OR ORGANIC BASIS IN PEKINGESE.

1. The lower jaw is held back.
2. The tongue position is more to the front than in English.
3. Aspirated consonants are more strongly aspirated than in English.
4. The unaspirated consonants have absolutely no breath and also no voice. They consist of a double stop; the vocal cords are held together while the stop is being made by the lips in *p* or by the tongue in *t* and *k*. Both stops are opened at the same time and the vibration of the vocal cords for the vowel begins immediately.
5. The vocal organs are very tense.
6. To stress any word in a sentence the word is not given with more force but all the elements of its "tone" are brought out most fully.
7. When a Pekingese hesitates for a word he cannot recall he does not say *ə* as English-speaking people do but draws out the last syllable, says *a*, or repeats some common phrase such as *che ko* 這個 or *na ko* 那個. The common use of *ə* in English is due to the general laxness of the vocal organs in speaking that language. In Chinese the vocal organs are not lax, so this sound seldom occurs.

SPECIAL DIFFICULTIES EXPERIENCED BY AN ENGLISH-SPEAKING PERSON IN LEARNING TO PRONOUNCE CHINESE CORRECTLY.

The rhythm is of course very difficult to acquire, and cannot be acquired without constant careful repetition after a Chinese teacher. The same is true of the pronunciation of the individual sounds and the acquiring of the Chinese normal pose but a knowledge of the differences between English and Pekingese will make this imitation of the teacher more intelligent. It enables one to call in the assistance of the sense of sight in watching the teacher, and the sense of touch in the mouth in doing the imitating to supplement the hearing with the ears.

1. Learn to aspirate the aspirated consonants more than the unaspirated consonants in English.
2. Learn to give the unaspirated *p*, *t* and *k* without allowing any breath to flow out of the mouth.
3. Learn to form *n*, *t'*, *t* and *l* with the tip of the tongue on the teeth and not on the gums.

PHONETICS.

4. Practise giving the vowels *y*, *ɤ*, *u*, as directed above.
5. Learn to form all the consonants and the vowels a little nearer the front of the mouth than in English.
6. Learn to speak with the organs tense and the lower jaw held back. The lower front teeth should never get as far forward as the upper front teeth.
7. Do not conclude that because you have not heard some of the differences which may have been mentioned that they are not real. The ear is often deaf to distinctions in sound which the tongue has not learned to make. Do not conclude that your vocal organs are so shaped that they cannot make some of the Chinese sounds. The differences in the sounds of the two languages are due not to differences in the formation of the organs of the two peoples, but to difference in habit. You can form new habits.
8. The sounds usually written *ch'ih* 喫, *jih* 日, *tzu* 資, often cause difficulty because the student follows the romanization, which in this case is apt to be misleading. There is no vowel in these words.
9. Do not test the accuracy of the statements in this paper by your memory of sounds you have heard but by careful and repeated observation of Chinese and foreigners. Time spent in listening to addresses you do not understand or do not enjoy can profitably be devoted to this.

HOW TO STUDY PEKINGESE AND ENGLISH PHONETICS.

1. Master what has been written on the subject. Noel-Armfield "General Phonetics," and Daniel Jones "The Pronunciation of English," are two of the most helpful books on this subject. The former was written especially for those who have to study oriental languages. Unfortunately for Americans, the books on phonetics describe the sounds heard in southern England, and since the sounds differ in America, this sometimes leads to confusion.
2. Study the formation of individual sounds and normal pose of Chinese and of British and American when each is speaking his native language.
3. Watch foreigners who are speaking Chinese. Those things which sound peculiar and foreign are usually English sounds which can be observed more easily in the midst of familiar sounds. The same is true of watching a Chinese speak English. What is known as a foreign accent is not merely due to accenting or stressing the syllables incorrectly. It consists in substituting the various sounds of one's mother tongue for the similar, yet slightly different, sounds in the language one is attempting to speak.

